

IN THE CLAIMS

Please amend claims 1-3, 5, 7, 8, and 13 as follows:

1. (CURRENTLY AMENDED) A method for demodulating and decoding a hierarchically modulated signal having a first modulation at a first hierarchical level and a second modulation at a second hierarchical level, comprising the steps of:
demodulating and processing the hierarchically modulated signal to produce symbols from the first modulation at the first hierarchical level;
applying information from a plurality of the symbols from the first modulation at the first hierarchical level in subtracting from the demodulated hierarchically modulated signal to obtain the hierarchically modulated signal having the second modulation at the second hierarchical level; and
processing the second modulation at the second hierarchical level to produce second symbols from the demodulated second signal;
wherein the hierarchically modulated signal comprises a non-uniform eight phase shift keyed signal.
2. (CURRENTLY AMENDED) The method of claim 1, wherein said applying information from the plurality of the symbols from the first modulation at the first hierarchical level comprises applying the symbols from the first modulation at the first hierarchical level after error correction.
3. (CURRENTLY AMENDED) The method of claim 2, wherein said applying information from the plurality of the symbols includes performing an error corrected demodulation on the hierarchically modulated signal.
4. (PREVIOUSLY PRESENTED) The method of claim 2, wherein the error correction comprises a forward error correction process .
5. (CURRENTLY AMENDED) The method of claim 1, wherein said processing the hierarchically modulated signal to produce symbols from the first modulation at the first hierarchical level includes a decision-directed carrier recovery process.

6. (PREVIOUSLY PRESENTED) The method of claim 1, wherein the plurality of the symbols from the first modulation at the first hierarchical level are re-encoded before being subtracted from the demodulated hierarchically modulated signal.

7. (CURRENTLY AMENDED) The method of claim 1, wherein the hierarchically modulated signal is coherent and processing the second modulation at the second hierarchical level to produce the second symbols includes decoding the second modulated signal.

8. (CURRENTLY AMENDED) The method of claim 7, wherein the hierarchically modulated signal is non-coherent and processing the second modulation at the second hierarchical level to produce the second symbols further includes demodulating the second modulated signal.

9. (PREVIOUSLY PRESENTED) A receiver system for demodulating and decoding a hierarchically modulated signal having a first modulation at a first hierarchical level and a second modulation at a second hierarchical level, comprising:

- a first demodulator for demodulating the first modulation of the hierarchically modulated signal;
- a symbol decoder, communicatively coupled to the first demodulator, for producing symbols from the demodulated first signal;
- an error decoder, communicatively coupled to the symbol decoder, for producing an error corrected symbol stream from the symbols from the demodulated first signal;
- a re-encoder for re-encoding the error corrected symbol stream;
- a subtractor, communicatively coupled to the re-encoder and the first demodulator, for subtracting the re-encoded symbol stream from the first signal to produce a second signal; and
- a second symbol decoder, communicatively coupled to the subtractor for producing second symbols from the second signal.

10. (PREVIOUSLY PRESENTED) The receiver system of claim 9, further comprising a second level demodulator, communicatively coupled between the subtractor and the

10. (PREVIOUSLY PRESENTED) The receiver system of claim 9, further comprising a second level demodulator, communicatively coupled between the subtractor and the second symbol decoder for demodulating the second signal from the subtractor and providing the demodulated second signal to the second symbol decoder;
wherein the hierarchically modulated signal is non-coherent.
11. (PREVIOUSLY PRESENTED) The receiver system of claim 9, wherein the hierarchically modulated signal is coherent.
12. (PREVIOUSLY PRESENTED) The receiver system of claim 9, wherein the error decoder comprises a forward error correction decoder.
13. (CURRENTLY AMENDED) A receiver system for demodulating and decoding a hierarchically modulated signal having a first modulation at a first hierarchical level and a second modulation at a second hierarchical level, comprising:
a first demodulator for demodulating the first modulation of the hierarchically modulated signal;
a symbol decoder, communicatively coupled to the first demodulator, for producing symbols from the demodulated first signal;
an error decoder, communicatively coupled to the symbol decoder, for producing an error corrected symbol stream from the symbols from the demodulated first signal;
a re-encoder for re-encoding the error corrected symbol stream;
an error correcting demodulator, communicatively coupled to the re-encoder for demodulating the hierarchical signal using the error corrected and re-encoded symbols from the demodulated first signal;
a subtractor, communicatively coupled to the re-encoder and the an error correcting demodulator, for subtracting the re-encoded symbol stream from the error correcting demodulated hierarchically modulated signal to produce a second signal; and
a second symbol decoder, communicatively coupled to the subtractor for producing second symbols from the second signal.

14. (PREVIOUSLY PRESENTED) The receiver system of claim 13, further comprising:
a second level demodulator, communicatively coupled between the subtractor and the second symbol decoder for demodulating the second signal from the subtractor and providing the demodulated second signal to the second symbol decoder;
wherein the hierarchically modulated signal is non-coherent.
15. (PREVIOUSLY PRESENTED) The receiver system of claim 13, wherein the hierarchically modulated signal is coherent.
16. (PREVIOUSLY PRESENTED) The receiver system of claim 13, wherein the error decoder comprises a forward error correction decoder.
17. (PREVIOUSLY PRESENTED) The receiver system of claim 9, wherein the hierarchically modulated signal comprises a non-uniform eight phase shift keyed signal.
18. (PREVIOUSLY PRESENTED) The receiver system of claim 13, wherein the hierarchically modulated signal comprises a non-uniform eight phase shift keyed signal.